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☐	L2	L1 same (yeast or eukaryotic or eucaryotic)	6
☐	L1	lifespan same stress	210

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☐ 1. Document ID: US 20030190312 A1

L2: Entry 1 of 6 File: PGPB Oct 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030190312
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030190312 A1

TITLE: Eukaryotic genes involved in adult lifespan regulation

PUBLICATION-DATE: October 9, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kenyon, Cynthia	San Francisco	CA	US	
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Dillin, Andrew	Oakland	CA	US	
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Lehrer-Graiwer, Josh	San Francisco	CA	US	
Murphy, Coleen	San Francisco	CA	US	

US-CL-CURRENT: 424/130.1; 435/6, 435/7.2, 800/8

ABSTRACT:

The present invention relates to regulation of adult lifespan in eukaryotes. More particularly, the present invention is directed to methods of assaying for genes, gene products, and genes in pathways controlled by such genes and gene products, using RNAi and microarray analysis, that regulate lifespan (e.g., extend or truncate adult lifespan) in eukaryotes such as invertebrates (e.g., C. elegans), plants, and mammals, e.g., humans. For example, the present invention is directed to genes encoding components of the mitochondrial respiratory chain and genes encoding glycolysis enzymes, which are involved in lifespan regulation, and genes and gene products in pathways controlled by such genes. Other genes and gene products identified as regulating aging and aging pathways include a gene encoding a GTPase; a transcriptional activator; novel genes: llw-1, llw-2, llw-3, and llw-4; genes encoding cytochrome P450 proteins (involved in steroid biosynthesis); a melatonin synthesis gene; genes encoding insulin and insulin-like peptides; genes encoding heat shock factors; genes encoding catalases; stress-response genes; and metabolic genes. The invention further relates to methods for identifying and using agents, including small molecule chemical compositions, antibodies, antisense nucleic acids, and ribozymes, that regulate, e.g., enhance, adult lifespan via modulation of aging associated proteins; as well as to the use of expression

profiles, markers, and compositions in diagnosis and therapy related to lifespan extension, life expectancy, and aging. The present invention also relates to gene therapy involving lifespan associated genes.

L2: Entry 1 of 6 File: PGPB Oct 9, 2003

DOCUMENT-IDENTIFIER: US 20030190312 A1
TITLE: Eukaryotic genes involved in adult lifespan regulation

Detail Description Paragraph:
[0113] The most obvious disruption of the aging process is a change in lifespan of an individual. Lifespan can either be increased or decreased by a mutation in a gene that participates in the aging process or, as shown here, by another intervention, e.g., RNAi mediated silencing of such a gene. In addition, for all eukaryotic organisms other physical characteristics can be used to distinguish young individuals from older individuals. Thus, at an organismal level, a mutation that affects the aging process will usually affect the lifespan of an individual and may also affect other aging characteristics of that individual. Such manifestations of the aging process are known as "age-associated parameters," e.g., indicia from Nomarski analysis, stress resistance, appearance, physiological changes, disease states, loss of doubling capacity, changes in differentiated phenotype, indirect effects such as fusion protein expression and localization or posttranscriptional modification, etc., are described in more detail below.

Detail Description Paragraph:
[0117] Characteristics of aging can also be observed in cultured cells and also in mitochondria. Note that many of these characteristics can also be observed in animals. Normal eukaryotic cells have a defined lifespan when taken from the organism grown in culture. These "primary" tissue culture cells are cells that have neither been immortalized nor acquired a transformed phenotype. The primary cells will divide a defined number of times in culture and then die (reviewed in Campisi, Exper. Geron. 36:6-7-618 (2001)). Cellular aging is also characterized by changes other than loss of doubling capability, e.g. changes in apoptotic death and changes in differentiated phenotypes (Id.). In some cases, cellular characteristics of aging can also be observed in immortalized or transformed cell lines. Aging cells also show stress resistance, e.g., free radical generation and H.sub.2O.sub.2 resistance. Age-related bio-markers, gene, and protein expression patterns may also be used to determine or measure aging.

☐ 2. Document ID: US 20030082724 A1

L2: Entry 2 of 6 File: PGPB May 1, 2003

PGPUB-DOCUMENT-NUMBER: 20030082724
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030082724 A1

TITLE: Compositions affecting programmed cell death and their use in the modification of plant development

PUBLICATION-DATE: May 1, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Flinn, Barry	Fredericton		CA	
Lasham, Annette	Auckland		NZ	

US-CL-CURRENT: 435/69.1; 435/200, 435/320.1, 435/419, 536/23.6, 800/278

ABSTRACT:

Novel isolated polynucleotides associated with programmed cell death and various plant developmental mechanisms are provided, together with genetic constructs comprising such sequences. Methods for the modulation of the content, structure and metabolism of plants, and particularly for the modulation of PCD and various plant developmental mechanisms in plants, are also disclosed, the methods comprising incorporating one or more of the polynucleotides or genetic constructs of the present invention into the genome of a plant.

L2: Entry 2 of 6 File: PGPB May 1, 2003

DOCUMENT-IDENTIFIER: US 20030082724 A1
TITLE: Compositions affecting programmed cell death and their use in the modification of plant development

Detail Description Table CWU:

2TABLE 2 SEQ ID NO: SEQ ID NO: Polynucleotide Polypeptide Description 207-209 249-251 The RING-finger is a zinc binding domain of 40 to 60 residues that binds two atoms of zinc and is found in a wide range of regulatory proteins including viral transcription factors, oncoproteins and components of signal transduction pathways, and in proteins involved in DNA repair and recombination. Proteins carrying this domain have been implicated in a range of diverse biological processes such as development, apoptosis, cell- cycle control and ubiquitination. (Grishin, Nucleic Acids Res. 29:1703-1714, 2001). 210-212 252-254 DAD1 (Defender Against Cell Death 1) is associated with cellular housekeeping functions that are necessary for cell health and survival, and their loss may lead to cell death. Cells in temperature-sensitive mutant hamster cell lines undergo PCD at restrictive temperatures, and it has been shown that the Arabidopsis DAD1 can rescue the hamster temperature-sensitive mutant. DAD1 is a component of oligosaccharyltransferase, involved in N-linked glycosylation. DAD1 is involved in induction of cell death and reduction of PCD during development. 214 256 Homologue of lls1 (lethal leaf spot protein) that was identified from a maize mutant, and that is required to limit the spread of cell death in a developmental manner in leaves. 215-216 257-258 Homologue of Lsd1 (lesion simulating cell death) that is involved in superoxide-dependent signalling and acts as a negative regulator of a plant cell death pathway. Lsd1 encodes a zinc finger protein with homology with GATA- type transcription factors, and the LSD1 protein functions either to negatively regulate a pro-death pathway component or to activate a repressor of plant cell death (Dietrich et al., Cell 88: 685-694, 1997). This homologue contains the three zinc finger domains conserved in Arabidopsis thaliana lsd1. 217 259 Homologue encoding nucellin that is involved in cell death. The actual process of cell death involves the degradation of proteins and nucleic acids, mediated by proteases and nucleases. In addition, an aspartic nuclease, nucellin, is specifically associated with nucellar cell death (Chen and Foolad, Plant Mol. Biol. 35: 821-831, 1997). 218 260 Homologue of the plant protein oxy5 from Arabidopsis that is a member of the annexin family and protect bacterial cells from oxidative stress. Oxy5 protects mammalian cells from tumor necrosis factor-induced cell death (Kush and Sabapathy, Int. J. Biochem. Cell. Biol. 33: 591-602, 2001). The involvement of oxidative stress in the various instances of programmed cell death in plants suggests that oxy5 plays a protective role. 219-220 261-262

Homologue of the tumor suppressor gene, prohibitin, that is involved in cell cycle arrest. In rat B lymphocytes, the association of prohibitin with membrane-bound IgM is a mediator of programmed cell death in these cells. Furthermore, in yeast, the deletion of prohibitin homologs resulted in a decreased replicative lifespan, leading to successive decreases in cell cycle time, ageing and cellular senescence. 221 263 Protein kinases have a conserved catalytic core common to both serine/threonine and tyrosine protein kinases which play critical roles in regulating cell development and PCD. 222-223 264-265 The Ras branch of the Ras superfamily consists of small GTPases, most closely related to Ras and includes the R- Ras, Rap, Ral, Rheb, Rin and Rit proteins. Studies have shown that treatments that induce programmed cell death (PCD) also cause oxidative stress, suggesting a role for oxidative stress in PCD. NADPH oxidase and rac2 are present in plant cells and interact during hypersensitive response PCD. Furthermore, the NADPH oxidase is active during osmotic stress-mediated cell death and during the terminal phase of tracheary element differentiation. 224 266 Homologue of rac2, a small cytosolic protein that is required for activation of oxidases that plays a role in PCD. When a constitutively active rac2 mutant was inserted into mice, a significant enhancement of PCD occurred compared to wild type mice. Biochemical and immunochemical studies have shown that rac2 is present in plant cells and interact during hypersensitive response PCD. 225-226 267-268 Homologue of the retinablastoma gene (RB) from mammals that is involved in p45 mediated responses. P45 is a known tumor repressor that can mediate cell cycle arrest and trigger PCD. This tumor suppressor can bind and inhibit the transcription factors that initiate entry into the cell cycle. In addition, RB plays a regulatory role in the cell death process, depending on its phosphorylation status. The regulation of RB proteolysis by phosphorylation status, and the consequent RB levels in the cells are important in the determination of cellular fates. 227-228 269-270 Homologue of the mammalian gene SINA (Seven In Absentia) that is activated during PCD. Human homologs to the Drosophila SINA gene are activated during PCD and target specific proteins for ubiquitination and degradation in both humans and Drosophila. In addition to actual protease activity, targeting of proteins for proteolytic degradation via the ubiquitin-proteosome pathway is up- regulated during PCD. 229-230 271-272 Homologue of the TATA Box Binding Protein (TFIID). TFIID is a housekeeping gene that may be used to control cell survival and cell death and is the most important general factor required for gene transcription by RNA Polymerase II. TFIID binds to the TATA box and participates in the first steps of transcription factor assembly, which is important for the control of gene expression (Martinez et al., Proc. Natl. Acad. Sci. USA 92:11864-11868, 1995). The ability to developmentally or tissue-specifically knock-out TFIID activity provides a method of specifically inducing cell death. Attempts at TFIID knock-out have not been reported for plants. 231-232 273-274 Homologue of Bax inhibitor (BI-1) that inhibits Bax- induced cell death. This gene is identical to a previously identified human gene identified as TEGT (Testis Enhanced Gene Transcript). In mammalian systems, caspase activation can be inhibited by proteins such as Bcl- 2, providing protection against cell death. However, other members of the Bcl-2 family, such as Bax, are antagonistic towards the protective effect of Bcl-2 and promote cell death, due to their ability to interact with Bcl-2 and inhibit its protective ability. 233 275 Homologue of the mammalian transcription factor Pur- alpha that is involved in the control of mammalian cell death. Pur-alpha is a single-stranded DNA binding protein, which has plays a role in both DNA replication and transcriptional regulation. Pur-alpha is able to suppress PCD of mammalian cells by two mechanisms. The first is the transcriptional repression of Fas (CD-95), a receptor which transduces a cell death signal by interaction with its ligand, and the second is the protection of mammalian cells against cell death mediated by p53. Pur alpha contains a region with limited homology to the simian virus 40 large tumor antigen, and this region is implicated in the binding of each of these proteins to Rb, the retinoblastoma tumor suppressor gene product. 234-243 276-285 Eukaryotic thiol proteases (EC 3.4.22.-) are a family of proteolytic enzymes which contain an active site cysteine. Families C1, C2 and C10 are loosely termed papain-like. The papain family has a wide variety of activities, including broad-range (papain) and narrow-range

endo- peptidases, aminopeptidases, dipeptidyl peptidases and enzymes with both exo- and endo-peptidase activity (such as cathepsins B and H). The papain family is generally synthesized with signal peptides and propeptides at the N- terminus and therefore proteolytic cleavage of the propeptide is required for enzyme activation. The majority of the propeptides are similar to that of papain, the first 5 amino acids being part of the `ERFNTN` motif used to

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☐ 3. Document ID: US 20030082647 A1

L2: Entry 3 of 6 File: PGPB May 1, 2003

PGPUB-DOCUMENT-NUMBER: 20030082647
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030082647 A1

TITLE: Transporter protein

PUBLICATION-DATE: May 1, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Reenan, Robert A.	West Hartford	CT	US	
Rogina, Blanka	West Hartford	CT	US	
Helfand, Stephen L.	Orange	CT	US	

US-CL-CURRENT: 435/7.21; 424/9.2

ABSTRACT:

This disclosure provides in part a method of evaluating a compound. The method includes: contacting a carboxylate transporter polypeptide with a test compound; evaluating an interaction between the test compound and the carboxylate transporter polypeptide; contacting a cell or organism that produces the carboxylate transporter polypeptide with the test compound; and evaluating the effect of the test compound on the rate of aging of the cell or organism.

L2: Entry 3 of 6 File: PGPB May 1, 2003

DOCUMENT-IDENTIFIER: US 20030082647 A1
TITLE: Transporter protein

Summary of Invention Paragraph:
[0004] Similarly, studies of the aging process have indicated that it is controlled by environmental factors as well. In particular, caloric restriction, which typically refers to a diet in which caloric intake is limited to about 30% to 40% of the calories that an animal fed ad libitum would consume, has been shown to extend lifespan in rodents, worms and yeast. See, e.g., Weindruch et al. (1986), Journal of Nutrition 116:641-54. One possibility is that caloric restriction brings about a reduction in metabolism, which in turn slows down the production of toxic oxygen radicals that result in oxidative stress. Oxidative damage to cells has been

correlated with aging, although a causal link has not been established.

☐ 4. Document ID: US 20030082597 A1

L2: Entry 4 of 6 File: PGPB May 1, 2003

PGPUB-DOCUMENT-NUMBER: 20030082597
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030082597 A1

TITLE: Age-associated markers

PUBLICATION-DATE: May 1, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cannon, L. Edward	Cambridge	MA	US	
Bayley, Cynthia A.	Norwell	MA	US	
Kenyon, Cynthia J.	San Francisco	CA	US	
Guarente, Leonard P.	Chestnut Hill	MA	US	
Watson, Alan D.	Lexington	MA	US	

US-CL-CURRENT: 435/6; 435/7.1

ABSTRACT:

Disclosed is a method of identifying an biological age-associated marker. The method can include: providing a first organism having a first genotype and a second organism having a second genotype, wherein the first and second organisms are derived from the same species and are the same chronological age; and comparing a property associated with a biomolecule in the first organism to a property associated with the biomolecule in the second organism to identify a biomolecule having a preselected value for said property, thereby identifying the biomolecule as an biological age-associated marker.

L2: Entry 4 of 6 File: PGPB May 1, 2003

DOCUMENT-IDENTIFIER: US 20030082597 A1
TITLE: Age-associated markers

Detail Description Paragraph:
[0058] The aging of living organisms includes complex developmental changes that occur over the passage of time. The invention is based, in part, on the observation that molecular mechanisms regulate the aging process. Thus, aging includes biologically programmed changes in addition to random or incremental accumulation of detrimental events that may result, for example, from exposure to the environment or stress. Furthermore, many of these programmed aging mechanisms may be conserved across species as diverse as yeast and humans. Modem molecular genetic techniques have enabled the discovery of conserved pathways that regulate lifespan in yeasts, nematodes, fruit flies and mice. In some cases, mutation in a single

gene can result in altered lifespan (reviewed in, e.g., Guarente and Kenyon, Nature 2000; 408:255).

☐ 5. Document ID: US 6632934 B1

L2: Entry 5 of 6 File: USPT Oct 14, 2003

US-PAT-NO: 6632934
DOCUMENT-IDENTIFIER: US 6632934 B1

TITLE: MORC gene compositions and methods of use

DATE-ISSUED: October 14, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moreadith; Randall W.	Chapel Hill	NC		
Zinn; Andrew R.	Dallas	TX		
Watson; Mark L.	Dallas	TX		
Inoue; Norimitsu	Yao			JP
Hess; Karl D.	McDade	TX		
Albright; George M.	Irving	TX		

US-CL-CURRENT: 536/23.1

ABSTRACT:

Disclosed are compositions and methods comprising a novel mammalian gene, designated MORC, that is expressed in male germ cells. Also disclosed are polynucleotide compositions comprising a MORC gene from human and murine sources, and polypeptides encoded by these nucleic acid sequences. Methods for preparing MORC polypeptides, transformed host cells, and antibodies reactive with MORC polypeptides are also provided. In certain embodiments, the invention describes methods for diagnosing and treating infertility or testicular cancer, as well as methods for identifying MORC-related polynucleotide and polypeptide compositions.

2 Claims, 27 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 8

L2: Entry 5 of 6 File: USPT Oct 14, 2003

DOCUMENT-IDENTIFIER: US 6632934 B1
TITLE: MORC gene compositions and methods of use

Detailed Description Text (426):
liver," J. Biol. Chem., 266:3361-3364, 1991. Keegan, Holtzman, Plug, Christenson, Brainerd, Flaggs, Bentley, Taylor, Meyn, Moss, Carr, Ashley, Hoekstra, "The Atr and Atm protein kinases associate with different sites along meiotically pairing

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TITLE: Gene-targeted non-human mammals deficient in the SOD-1 gene

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INVENTOR-INFORMATION:

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ABSTRACT:

Gene-targeted heterozygous and homozygous SOD-1 null non-human mammals, methods for producing them, and methods for use are described. Deletion vectors and gene-targeted cells are also described, as are methods for producing and using the same.

4 Claims, 11 Drawing figures
Exemplary Claim Number: 1
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Brief Summary Text (14):
It has been proposed that SOD is essential for normal aerobic life. (C. W. Olanow, TINS, 16: 439-444, 1993.) For example, non-mammalian SOD deficient organisms have been established which exhibit highly deleterious characteristics. Escherichia coli lacking SOD activity exhibit an oxygen-dependent auxotrophy for branched chain amino acids. These organisms are unable to grow aerobically on minimal media, and are highly sensitive to the free radical-producing agents paraquat and hydrogen

peroxide. (Carlioz et al., EMBO J., 5: 623-630, 1986.) Cu/Zn SOD deficient yeast (Saccharomyces cerevisiae) are intolerant to atmospheric levels of oxygen and are auxotrophic for lysine and methionine. (Chang et al., JBC, 266: 4417-4424, 1991.) Null mutations for Cu/Zn SOD in Drosophila melanogaster cause toxic hypersensitivities to oxidative stress conditions and a significant reduction in the adult lifespan. (Phillips et al., Proc. Natl. Acad. Sci. USA, 86: 2761-2765, 1989.)

Term	Documents
YEAST	99268
YEASTS	19452
EUKARYOTIC	46086
EUKARYOTICS	23
EUCARYOTIC	6879
EUCARYOTICS	2
(1 SAME (EUCARYOTIC OR EUKARYOTIC OR YEAST)).PGPB,USPT,EPAB,JPAB,DWPI.	6
(L1 SAME (YEAST OR EUKARYOTIC OR EUCARYOTIC)).PGPB,USPT,EPAB,JPAB,DWPI.	6